California Department of Transportation

Capital Outlay Support
Workload Development Peer Review

Action Plan

Updated
December 1, 1998

Contents

1. Introduction

Item 2660-001-9942 of the supplemental report language to the 1996 Budget Act required the Department to develop a new estimating process for its 1997-98 Capital Outlay Support budget. It required that this new method be validated by engineering and management practitioners from the private and public sectors. Part of this validation was to be through a peer review by representatives of large, comparable private and public engineering enterprises.

The Peer Review Team consisted of:

Mr. Robert W. Bein, P.E.,   Chief Executive Officer, Robert Bein, William Frost & Associates.
Mr. William Carley, P.E.,   Senior Vice President, CH2M HILL
Mr. Fred W. Henstridge, P.L.S., Principal/Program Manager, Psomas and Associates
Mr. Victor M. Mendez, P.E.,   Assistant State Engineer - Statewide Project Management, Arizona Department of Transportation

The team submitted its report on September 16, 1996. It made sixty recommendations. It grouped these recommendations into five categories:

A. XPM Anchored Database Development and Implementation 15 recommendations.
B. Project Management Program Implementation   21 recommendations.
C. Project Delivery Efficiencies   12 recommendations.
D. Allocation of Resources   3 recommendations.
E. Performance Measures and Incentives   9 recommendations.
                                       TOTAL   60 recommendations

The Department found that A1 and A14 each required two responses, and as a result the March 14, 1997 Action Plan addressed 62 recommendations, rather than 60. Subsequently for the December 1, 1997 Action Plan it was determined that recommendation A13 should have three responses Accordingly, the current Action Plan addresses 64, rather than 62, recommendations. It addresses these recommendations in three categories:

Recommendations with which the Department agrees and which it has included in the Implementation Schedule (see Section 4)
  In the plan as recommended by the peer team: 5 recommendations
  In the plan in a modified form: 4 recommendations
    Sub-total, in the Implementation Schedule: 9 recommendations

Recommendations with which the Department agrees and which it has completed (see Section 5)
  Completed as recommended by the peer team: 40 recommendations
  Completed in a modified form: 10 recommendations
    Sub-total, Completed recommendations: 50 recommendations

Recommendations with which the Department disagrees (see Section 6)
             5 recommendations
    TOTAL 64 recommendations

This section summarizes the relationship between the five categories in the Peer Review Report and Department's responses to the 64 recommendations.
- <u>Section 2</u> provides a schedule for implementing the nine recommendations summarized below as "Items in the Action Plan".
- <u>Section 3</u> is a list of the fifty recommendations for which the implementation is complete (ten of them in a modified form).
- <u>Section 5</u> lists the five recommendations with which the Department disagrees.

- Section 6 lists all the sixty-four recommendations, with the Department's response to each recommendation.

		ITEMS IN THE ACTION PLAN		ITEMS NOT IN THE ACTION PLAN			
		Caltrans Response					
Category		Agree	Modify, then agree	Agree - Item complete	Agree - Item completed in a modified form	Disagree	**Total in Category**
A.	XPM Anchored Database Development and Implementation	3	3	9	2	2	**19**
B.	Project Management Program Implementation	1	0	15	4	1	**21**
C.	Project Delivery Efficiencies	1	0	8	3	0	**12**
D.	Allocation of Resources	0	0	3	0	0	**3**
E.	Performance Measures and Incentives	0	1	5	1	2	**9**
Total Recommendations		**5**	**4**	**40**	**10**	**5**	**64**

Recommendation

Number   *Recommendation*

2. Recommendations Completed since the December 1, 1997 Report

XPM Anchored Database Development and Implementation

A.   7   The ultimate data warehousing technology system of which XPM is only a part must be able to provide the data to allow for a final comparison of the original budget for a project, the record of the changes to the project, and the final total cost of the project including all overhead and ancillary costs for the project debriefing of the Project Manager, Function Manager, and Program Manager, then store this data in a systematic data base to use as a budgeting guide for future projects.

              Agree - Item complete.

Project Management Program Implementation

B.   3   In order to be sure that the Function Manager will equitably allocate resources to projects, the general rule should be that all Projects Managers should be one hat.

              Agree - Item complete.

B.   5   Project data pertaining to earned value such as budget and schedule expended compared to milestone reached and tasks accomplished must be available to Project Managers on a minimum of a monthly basis. Graphic trend reports must be available to the Project Managers so they can quickly and easily recognize project status.

              Agree - Item complete.

B.   8   It is recommended that a formal project management training program be established for all new Project Managers and Functional Managers.

              Agree - Item complete.

B.   9   It is recommended that in implementing contracting-out for Professional Services under the Flexible Resource Plan or when negotiating internal work plan project agreements, that Project Managers and Function Managers be trained in negotiating and administering lump sum contracts in a manner consistent with Quality Based Selection procedures.

              Agree - Item complete.

B.   10   It is recommended that in implementing contracting out for professional services under the Flexible Resource Plan that Project Managers and Function Managers be trained in the negotiating and administrating of Design/Build contracts based on the Quality Based Selection two-phase procedures.

              Item completed in a modified form.

B.   11   Any functional unit of Caltrans whether at the District level or Headquarters Staff that will use any of the resources assigned to a Project Manager must be a party to the signed work agreement.

              Agree - Item complete.

Recommendation

Number		*Recommendation*

B. 19 Function Managers are as critical to the Product Driven Zero Based Budgeting Project Management Program as the Project Manager and should receive training as to their role on the project team.

Agree - Item complete.

Project Delivery Efficiencies

C. 5 It is recommended that a plan be developed for project management of Caltrans oversight on locally managed projects.

Agree - Item complete.

Performance Measures and Incentives

E. 2 Implement the proposed on-going internal performance measurement program for quality, schedule, and budget results.

Agree - Item complete.

E. 5 A simplified performance measuring program needs to be established that measures resource use compared to productivity with simple logical reports on a project and program level for review by the Program Manager, District, Director, Corporate and the Legislature.

Item completed in a modified form.

E. 8 "Earned Value" should become a byword of the project management program and should be applied in the following three basic accountability areas:

a) Resources Expended Compared to Resources Budgeted for the Project
b) Products Delivered Compared to Program Milestones
c) Actual Schedule Compared to Planned Schedule

Agree - Item complete.

E. 9 In depth training at all levels of staff must be implemented as soon as the complete system is operational so that they clearly understand their role in Capital Outlay Support and know they must be accountable and motivated to contribute to project delivery in the most cost effective manner on each individual project through the implementation of the Product Driven Zero Based Budgeting and project management system.

Agree - Item complete.

Baseline Completion	Target Completion	Recommendation Number	Recommendation

3. Implementation Schedule

Items to be completed in calendar year   1999

Baseline Completion	Target Completion	Recommendation Number	Recommendation
8/1/97	1/1/99	A. 12	All costs affecting the project need to be entered into the database on a regular basis if the overall status of the various projects are to be evaluated by the Project Manager to make timely changes as part of the Program Project Management Plan.

This recommendation is included with the solution described for Recommendation No. A.7. The planned January 1999 release of the Project Financial Accountability and Cost Tracking System (PFACTS) will include costs at a summary level (consistent with the STIP support components described in SB 45 legislation). Future releases will provide more detailed expenditure information.

The Project Schedule and Control System (PSCS) provides hourly charges made through the previous week. See Recommendation #A.8 for more information on PSCS.

Baseline Completion	Target Completion	Recommendation Number	Recommendation
7/1/98	1/1/99	E. 4	There should be a system set up so the Program Manager and Project Manager can continually monitor the adopted performance measures to assure they remain current and credible.

The Capital Outlay Support (COS) Program has developed twelve performance measures: six of these are monitored quarterly and seven are reported on annually. There are four additional measures on which reporting will begin in the 1998/99 FY. For three of these, existing databases have been enhanced, and new databases and processes are under development which will provide the ability to maintain a continuing project inventory and track project cost across splits and combines. The fourth of these covers customer satisfaction and is addressed under the response to recommendation B.20.

Baseline Completion	Target Completion	Recommendation Number	Recommendation
1/1/98	6/30/99	B. 20	It is recommended that it be standard procedure for the Project Manager to interview the "Customer" at the start of the project to determine scope, and upon completion of the project to prepare a standardized report on customer satisfaction.

This recommendation has been partially implemented. The new Project Management Handbook, 2nd edition (September 1997) and Project Management education "roadshow" emphasize the importance of recognizing who the project customers' are, finding out their needs and expectations, and then meeting or exceeding those needs and expectations as a fundamental concept in delivering a "quality" project. The education also focuses on this information being included in the project workplans. SB 45 has been enacted to provide STIP Reform and will enhance the "customer" role regional transportation agencies will now play on state highway projects.

Activity elements currently exist within the WBS to capture charges for customer interviews. Specific emphasis will be added to highlight this particular activity in the next WBS Guide update.

The Department has worked with California State University, Chico, and developed a customer satisfaction survey regarding project delivery. The initial implementation for this survey will be with internal customers: Planning, Maintenance, and Operations. The internal customers have reviewed the survey. Their input needs to be incorporated into the survey, and then it will be

Baseline Completion	Target Completion	Recommendation Number	Recommendation

placed into operation. The process is under way to appoint a Project Manager to finalize development of an instrument, and to establish the necessary procedures to begin measuring quality in the 1998/99 fiscal year.

5/1/97	6/30/99	C. 2	Caltrans needs to establish a program for client/customer debriefing to determine the project satisfaction level of the customer.

The PMP Program has developed, through an Inter-Agency Agreement with the Survey Research Center at CSU, Chico, a survey for determining the project satisfaction level of its customers. The survey is entitled "Caltrans Project Management Program - Quality Measures for Completed Projects". The process is under way to appoint a Project Manager to finalize development of an instrument, and to establish the necessary procedures to begin measuring quality in the 1998/99 fiscal year.

Items to be completed in calendar year   2001

7/1/98	7/1/01	A. 13 B	There should be a link between XPM and CATS for tracking consultant hours and costs, and consultants should use the same WBS elements as State Employees for reporting their time and costs. It would improve accounting efficiency if CATS were modified to permit direct entry of consultant invoices. (Note: This Recommendation has been divided into (3) Parts.)

This listing is for Part B of Recommendation A.13. which is "It would improve accounting efficiency if CATS were modified to permit direct entry of consultant invoices."

The Department intends to develop a process and tool for the electronic submission of invoices with their WBS detail. This will not be CATS. It will be developed when computer programmers become available after dealing with the Year 2000 problem.

1/1/99	7/1/01	A. 14 B	It is imperative that a reality check be run on XPM, and an achievable accomplishment list including the linkage data of this system with ancillary output programs such as CATS, ORACLE, etc. This should provide Project Managers with the actual data deliverables including dates when delivery will take place. It should be prepared as soon as possible to restore credibility of the basic tool.

This listing is for Part B of Recommendation A.14. which specifically responds to the linkage with CATS.

The Department intends to develop a process and tool for the electronic submission of invoices with their WBS detail. This will not be CATS. It will be developed when computer programmers become available after dealing with the Year 2000 problem.
(Note: This response is a duplicate of A13B.)

Baseline Completion	*Target Completion*	*Recommendation Number*	*Recommendation*
1/1/99	1/1/01	A. 13 C	There should be a link between XPM and CATS for tracking consultant hours and costs, and consultants should use the same WBS elements as State Employees for reporting their time and costs. It would improve accounting efficiency if CATS were modified to permit direct entry of consultant invoices. (Note: This Recommendation has been divided into (3) Parts.)

PART C. There should be a link between XPM and CATS for tracking consultant hours and costs, and consultants should use the same WBS elements as State Employees for reporting their time and CATS should permit direct entry of consultant invoices.

This listing is for Part C of Recommendation A.13. which is "There should be a link between XPM and CATS for tracking consultant hours and costs,...".

The Department intends to develop a process and tool for the electronic submission of invoices with their WBS detail. This will not be CATS. It will be developed when computer programmers become available after dealing with the Year 2000 problem.
(Note: This response is a duplicate of A13B.)

Items without a defined completion date.

A.   1 B   A realistic date should be set for implementing a fully operational Department-wide database XPM system, as well as the coordinated and fully functional total "Program/Project Management" reporting system of which

This listing is for Part B of Recommendation A.1. which is "..., as well as the coordinated and fully functional total "Program/Project Management" reporting system of which XPM is only one part".

This item has not yet been scheduled. It requires a Feasibility Study Report (FSR).   It will include an implementation schedule. Preparation of the FSR is on hold pending resolution of the Department of Information Technology (DOIT) issues on statewide systems (see DOIT memo dated June 20, 1997).

A.   9 It is recommended that the following data sources be tracked and placed in the Project Managers Database as measurable goals for project evaluation and future budgeting as a part of the Program/Project Management Plan system.

a) Significant milestones and projects completion data compared with original schedule.
b) Final cost of project compared with original budget.
c) Receipt of External permits.
   i)   Date received vs. original schedule.
   ii) Additional costs to project to receive permit.
d) Number and complexity of bid documents addendum's during bidding process.
e) Comparison of bid cost with original programmed budget, fund request, engineers estimate, and final award amount.
f) Number and additional cost of construction change orders.
g) Number and settlement cost of post construction claims.
h) Accident rate during construction.
i) Ongoing tracking of accident rate after project completion.
j) Comparison of actual maintenance costs compared to anticipated programmed maintenance.
k) Success of congestion management program.

Baseline Completion	*Target Completion*	*Recommendation Number*	*Recommendation*
			This recommendation requires an integrated, automated, enterprise-wide program / project management system. This requires a Feasibility Study Report (FSR). It will include an implementation schedule. Preparation of the FSR is on hold pending resolution of the Department of Information Technology (DOIT) issues on statewide systems (see DOIT memo dated June 20, 1997).
			Items i, j and k are not project data, hence, should not be in a project management database system. These are transportation facility operational data. This data is tracked in other databases. It will be available by relating the project data to those databases.

Recommendation
Number   **Recommendation**

4. Completed Recommendations

A. *XPM Anchored Database Development and Implementation*

A. 1   A realistic date should be set for implementing a fully operational Department-wide database XPM system, as well as the coordinated and fully functional total "Program/Project Management" reporting system of which XPM is only one part.

Agree - Item complete.

A. 2   The complete program should be clearly defined for output, fully operational and user friendly before mandating its use by Project Managers.

Agree - Item complete.

A. 4   Continue to use PYPSCAN as a reality check until XPM works.

Agree - Item complete.

A. 5   As a 1st phase, concentrate on getting XPM up and running to level 5, then expand its use to lower levels. However, continue to check detailed logic so that it can be expanded to lower levels at a future date.

Agree - Item complete.

A. 6   XPM must readily accept ongoing adjustments for variable or changed conditions such as revised time cards, cash overtime, leave balance, and 9/80 schedules for shortened, more finite tasks with resource assignments by named individuals.

Item completed in a modified form.

A. 7   The ultimate data warehousing technology system of which XPM is only a part must be able to provide the data to allow for a final comparison of the original budget for a project, the record of the changes to the project, and the final total cost of the project including all overhead and ancillary costs for the project debriefing of the Project Manager, Function Manager, and Program Manager, then store this data in a systematic data base to use as a budgeting guide for future projects.

Agree - Item complete.

A. 8   The implementation of the XPM resource management interface with Oracle needs to be expedited since the total project management process, as a complete tool, hinges on the information system data output report and its effective use by Project Managers. Without this timely and user-friendly complete data reporting system, the Project Manager is forced to improvise for much of the ongoing data needed to fully understand the status of a project.

Agree - Item complete.

A. 11   It is recommended that the XPM system be fine tuned so that it can be rolled up or down from a base level 5 on a function level, a project level, and a program level.

Agree - Item complete.

A. 13   A   There should be a link between XPM and CATS for tracking consultant hours and costs, and consultants should use the same WBS elements as State Employees for reporting their time and costs. It would improve accounting efficiency if CATS were modified to permit direct entry of consultant invoices. (Note: This Recommendation has been divided into (3) Parts.)

Item completed in a modified form.

A. 14   A   It is imperative that a reality check be run on XPM, and an achievable accomplishment list including the linkage data of this system with ancillary output programs such as CATS, ORACLE, etc. This should provide Project Managers with the actual data deliverables including dates when delivery will take place. It should be prepared as soon as possible to restore credibility of the basic tool.

Agree - Item complete.

A. 15   The PRC recommends that Caltrans train all staff members to use the term "XPM" appropriately as only one of the elements of the "Program / Project Management Plan" that is limited to providing scheduling and support cost management data with elements of risk management.

Agree - Item complete.

Recommendation
    Number   *Recommendation*

B.   ***Project Management Program Implementation***

B. 1	Although Single Focal Points may have the responsibility and flexibility in deciding whether to go below level 5 for project management data collection at this time, sometimes Corporate may have special requirements on certain projects to collect data below level 5, and therefore, a formal policy on these projects should be established for guidance of the Project Manager.
	Item completed in a modified form.
B. 2	The Project Manager should finalize project budgets in dollars including the cost of other project costs, the dollar value of PYs, as well as consultant costs when applicable.
	Agree - Item complete.
B. 3	In order to be sure that the Function Manager will equitably allocate resources to projects, the general rule should be that all Projects Managers should be one hat.
	Agree - Item complete.
B. 4	However, some small (less than one million dollars in capital outlay) single function projects may lend themselves to the two hat management concept at the discretion of the District Program Manager.
	Agree - Item complete.
B. 5	Project data pertaining to earned value such as budget and schedule expended compared to milestone reached and tasks accomplished must be available to Project Managers on a minimum of a monthly basis. Graphic trend reports must be available to the Project Managers so they can quickly and easily recognize project status.
	Agree - Item complete.
B. 6	Function Managers must have the ability to reallocate resources based on changing project demands and priorities subject to Project Manager concurrence and Single Focal Point arbitration of differing opinions of the team members.
	Agree - Item complete.
B. 7	It is recommended that the Project Manager for a project that shares function resources between Districts (Brokering), be from the District where the project is located, and that brokering of portions of discreet project functions be used sparingly due to the inefficiency of split project functional teams.
	Agree - Item complete.
B. 8	It is recommended that a formal project management training program be established for all new Project Managers and Functional Managers.
	Agree - Item complete.
B. 9	It is recommended that in implementing contracting-out for Professional Services under the Flexible Resource Plan or when negotiating internal work plan project agreements, that Project Managers and Function Managers be trained in negotiating and administering lump sum contracts in a manner consistent with Quality Based Selection procedures.
	Agree - Item complete.
B. 10	It is recommended that in implementing contracting out for professional services under the Flexible Resource Plan that Project Managers and Function Managers be trained in the negotiating and administrating of Design/Build contracts based on the Quality Based Selection two-phase procedures.
	Item completed in a modified form.
B. 11	Any functional unit of Caltrans whether at the District level or Headquarters Staff that will use any of the resources assigned to a Project Manager must be a party to the signed work agreement.
	Agree - Item complete.
B. 12	Although Resident Engineers have a history of working as independent Project Managers during construction, it is important that in the future, the Project Manager maintains control of the project schedule and budget through the completion of construction because it is this phase where the most can be learned through accountability for measurable results.
	Agree - Item complete.
B. 13	Where a "Project Engineer" is assigned to the project management team, this person must be a signator and supporter of the final project resource agreement.
	Item completed in a modified form.

Recommendation
Number   Recommendation

B. 14   The PRC recommends that an oversight task force be created at the Headquarters level, staffed by the most experienced Functional Managers, to monitor the Product Driven Zero Based Budget and schedule requests submitted by Project Managers. This recommendation is made because, although project budgets are easier to monitor than program budgets, they are only as accurate as the experience and talents of the Project Manager and the team. Since this is a new program for most Project Managers and there is little, if any, historical or norm data presently available. Strong oversight on a project level should be implemented until these two major shortcomings are eliminated.

Item completed in a modified form.

B. 15   On page 24, Chapter VII - Project Management Activities, the role of the Project Manager should be expanded through the construction phase and the Resident Engineer should be part of the work plan.

Agree - Item complete.

B. 16   The Project Management Activities data recording is designed for large and complex projects. It would be helpful to Project Managers if a flexible system of reducing data reporting requirements for single function or small projects be provided for guidance.

Agree - Item complete.

B. 17   The role of the Project Engineer needs to be more thoroughly defined to prevent overlap or omissions in responsibility with the Project Manager.

Agree - Item complete.

B. 19   Function Managers are as critical to the Product Driven Zero Based Budgeting Project Management Program as the Project Manager and should receive training as to their role on the project team.

Agree - Item complete.

B. 21   It is recommended that depending on the difficulty of the project that up to 10% of the Capital Outlay Support Resources be allocated to Project Management to allow the Project Manager sufficient resources to guarantee budget, schedule and quality of the project.

Agree - Item complete.

C.   *Project Delivery Efficiencies*

C. 1   All levels of the Caltrans project team need a better understanding of who the customer is so they can become customer oriented.

Agree - Item complete.

C. 3   It is recommended that requests for additional funding from the California Transportation Commission (CTC) contingency fund for projects and legislature finance letters for programs be used as often as required to request additional funds for projects and programs that experience significant unforeseen changes that require funding that is above the approved budget, rather than borrowing resources from the early stage of future projects. The approval process for theses additional funding mechanisms must be expedited by both the CTC, and Legislature so as not to impact product delivery.

Agree - Item complete.

C. 4   It is recommended that borrowing resources from projects scheduled to be completed in future years be discouraged since this only tends to delay and cause budgeting problems for the future project.

Agree - Item complete.

C. 5   It is recommended that a plan be developed for project management of Caltrans oversight on locally managed projects.

Agree - Item complete.

C. 6   It is recommended that Caltrans submit an updated implementation plan and schedule to the Legislature when the use of a completely functional product driven zero based budgeting and project management program will be ready for user-friendly use. Since it is a total culture change, as well as a technical data base change it must have time to work itself into the work habits of the staff and leaderships within Caltrans.

Agree - Item complete.

C. 7   It is recommended that Caltrans report its record of project deliveries in two categories -

a) Continue to report on the number and percent of the original STIP projects proposed to be delivered during the year, versus the actual percentage completed of the original projects, and the reason for non-completion on those that were not completed.

Recommendation Number	Recommendation

b) Expand the report to include the number of new projects that were added to that year's STIP from the future STIP because of project efficiencies or additional available resources (such as new funding from bond issues, etc. or reallocated funding from delayed or canceled projects) and their percent complete and time saved by moving them ahead.

Agree - Item complete.

C. 8   Caltrans should enhance the effectiveness of its Environmental Specialist resources so it can respond statewide, such as the District 12 Right-of-Way Service Center in an effort to expedite environmental clearance.

Agree - Item complete.

C. 9   Project completion schedules are established in programming documents adopted by the CTC on a different timeline than the state budgeting process. PRC recommends that Caltrans carefully evaluate its resource needs under the new project based program before committing to a project completion schedule and staff resource requirement, since otherwise it will continue to be a program based budget. Also, the Legislature will be carefully watching the completion results for the proposed full program with the current staff level thinking it is project based, when it is not.

Item completed in a modified form.

C. 10   PRC recommends that all future program resource requests include contingency plans which provide for the opportunity to use flexible resources, such as contracting-out, when unforeseen changes are required to prevent the reallocation of resources on a crisis basis.

Item completed in a modified form.

C. 11   PRC recommends that Caltrans determine their interpretation of the requirements of SB1505 (devolution) and SB160 (flexible resources) and the impact of a favorable decision on the part of the Supreme Court for contacting-out, so the major changes can be incorporated into the project management and budget programs as soon as possible without creating another frustrating cultural shift for staff.

Agree - Item complete.

C. 12   A project should not be scheduled in the STIP for design and construction until it has environmental clearance.

Item completed in a modified form.

D.   *Allocation of Resources*

D. 1   It is recommended that the resource allocation to the Districts provide a flexible system of all types of District resources, such as the use of cash overtime, temporary employees, student interns, the reassignment of resources between Districts and the substitution of staff resources for professional services contracting-out dollars be established so that projects can move ahead on schedule. This ability to change resource allocation would eliminate the inefficiencies and additional costs caused by not being able to correct for the lack of needed resources or the over abundance of fixed resources.

Agree - Item complete.

D. 2   Rather than arbitrarily allocating some standard percentage of each Capital Outlay Support budget to the ESC, ESC should estimate its real needs on a project-by-project basis, and sign the work plan agreement.

Agree - Item complete.

D. 3   Corporate decisions on a program level need to take into account the resource estimates recommended by Project Managers and based on the individual project Product Driven Zero Based Budgeting Program. This first step of product driven zero based budgeting is essential and must be an integral part of the Capital Outlay support programs budgeting process and is a must if Caltrans is to ever be successful in project delivery under the new project management culture.

Agree - Item complete.

E.   *Performance Measures and Incentives*

E. 2   Implement the proposed on-going internal performance measurement program for quality, schedule, and budget results.

Agree - Item complete.

Recommendation Number	Recommendation

E. 3   Caltrans needs an enhanced incentive program to reward high performing staff members.
Agree - Item complete.

E. 5   A simplified performance measuring program needs to be established that measures resource use compared to productivity with simple logical reports on a project and program level for review by the Program Manager, District, Director, Corporate and the Legislature.

Item completed in a modified form.

E. 6   It is recommended that all funds allocated to Caltrans for every program they are assigned be allocated to a product or service recognizable to the public so that the Legislature can evaluate cost benefit for each product or service. This would make it possible to evaluate the true cost of Capital Outlay Support for the project delivery program.

Agree - Item complete.

E. 8   "Earned Value" should become a byword of the project management program and should be applied in the following three basic accountability areas:

a) Resources Expended Compared to Resources Budgeted for the Project
b) Products Delivered Compared to Program Milestones
c) Actual Schedule Compared to Planned Schedule

Agree - Item complete.

E. 9   In depth training at all levels of staff must be implemented as soon as the complete system is operational so that they clearly understand their role in Capital Outlay Support and know they must be accountable and motivated to contribute to project delivery in the most cost effective manner on each individual project through the implementation of the Product Driven Zero Based Budgeting and project management system.
Agree - Item complete.

Recommendation
    Number   Recommendation   Response

5. Recommendations with which the Department Disagrees

XPM Anchored Database Development and Implementation

A. 3	Establish one District as the trial District to work with Headquarters until the entire project management database and reporting system is working. Although District 3 has been the assigned District to date, it may be advantageous to consider either District 7 or District 12 as a future pilot to provide fresh ideas.	The schedule for developing the 1997-98 budget does not permit a second pilot. Each district has an immediate need to use the department's project management system, even if on a limited basis. The project management system should be limited to use by experts in Project Management Support Units. See Recommendation A.2.
A. 10	It is recommended that the XPM Administrator's Advisory Council (XAAC) task force be expanded to include the technical experts from each District or Region which are presently implementing XPM under the "Band-Aid" concept in order to bring together the most knowledgeable practitioners with the charge of developing the fully operational user friendly system that meets the Project Managers needs. This basic system should be implemented in the trial district before it is expanded throughout all districts. (Note the excellent Operational "Band-Aid" systems detailed by the Northern Region and District 7.)	This is not the role of the XAAC. Their charter is specifically the implementation and support of XPM, not a total project management information system. This activity would weaken the charter of XAAC and jeopardize implementation of XPM as added work is placed on the XPM Administrators. The Project Schedule and Control System (PSCS) provides much of the functionality included in the District 7 "Band-Aid". See Recommendation #A.8 for more information on PSCS. The North Region (District 3) is the XPM trial District. The District 7 "band aid" is a form of data warehouse. The department is expanding the project management data warehouse to include project schedule data and timesheet data. This will provide data and functionality equivalent to local (district) data warehouses. A team approach including district experts will be used to define the requirements of the expanded data warehouse.

Project Management Program Implementation

B. 18	'Open to traffic' should become the most important milestone, and the date of one year after this milestone should be the final milestone for the Project Manager. includes the clean-up and the resolution of all claims.	The PM should maintain responsibility until completion of project close-out. Open to public is difficult to define. Claim resolution and right of way clean-up can take several years after the project is open to traffic. Project close-out

Performance Measures and Incentives

E. 1	Establish an annual external measurement tool (peer review) for quality, schedule and budget results. Not necessarily a standing committee with fixed membership.	Establishment of an annual external measurement tool (peer review) is premature at this time. The Workload Development Peer Review has concluded, and the PMP has prioritized efforts which need to be made to develop/improve processes and tools. An independent consultant evaluation compared Caltrans to external engineering organizations in workload estimating, and found that "... the work Caltrans is undertaking seems to be one of the more progressive and innovative efforts at resource requirement estimating among public works organizations." The process to develop the Capital Support quality performance measure will give a measurement tool for quality. In addition to these, the Project Management Improvement efforts, the organization/cultural change to one-hat project managers, and the Department's

Recommendation
Number   Recommendation

Response

performance measurement process are all in the implementation.   To establish an external measurement process until these processes and tools are in place and operational would be premature, confusing and possibly, counterproductive. Once these processes and tools are in place, this recommendation could be revisited.

E. 7   After reviewing the Report to the Legislature on Capital Support Performance Measures, the PRC recommends an expansion of the number of proposed measures.

Caltrans is developing a three-tiered system of performance measures consisting of:
1. A limited number of corporate measures that focus on the overall health of transportation in California.
2. Program measures that focus on the health of each of the Department's programs.
3. Operational measures at the point where delivery of a product or service occurs.

The Peer Review Team recommends four additional performance measures. One of these is more appropriately a Department-level measure, one is already included in the Capital Support Measures, and two are more appropriately operational measures.

The Department-level measure would measure quality some time after construction. The Department is developing measures of mobility, safety and trip quality that will address this need.

The program-level measure would address capital cost growth after construction. Capital Support performance measure #9 addresses this by comparing the final estimate to the proposed final estimate.

A third recommendation would measure quality in project development. This is an operational measure of the design process.

The fourth recommended additional measure is to address support cost after construction.   This is an operational measures of Construction Claims and Legal. These support costs are a fairly small part of Capital Support and do not warrant elevation to the   Program-level.

Recommendation
Number   **Recommendation**   **Response**

6. Detailed Responses to all Recommendations

A.   XPM Anchored Database Development and Implementation

A. 1 A   A realistic date should be set for implementing a fully operational Department-wide database XPM system, as well as the coordinated and fully functional total "Program/Project Management" reporting system of which XPM is only one part.

Agree - Item complete.
This listing is for Part A of Recommendation A.1. which is "A realistic date should be set for implementing a fully operational Department-wide database XPM system,…". XPM is solely a project scheduling and resource planning system.

The accomplishment of this recommendation is within the constraints of the Department's response to Recommendation A.2. Specifically, the Department has made the decision to limit the roll-out of XPM to the Project Management Support Units (PMSU). Project Managers and Functional Managers will receive project related information from other sources (see response to recommendation A.2 for more information).

By July 1, 1997, all major State funded projects were scheduled in XPM. New fund estimate projects to be added to XPM to Level 5 by 3/1/98.

A. 1 B   Agree.
This listing is for Part B of Recommendation A.1. which is "..., as well as the coordinated and fully functional total "Program/Project Management" reporting system of which XPM is only one part".

This item has not yet been scheduled. It requires a Feasibility Study Report (FSR).   It will include an implementation schedule. Preparation of the FSR is on hold pending resolution of the Department of Information Technology (DOIT) issues on statewide systems (see DOIT memo dated June 20, 1997).

A. 2   The complete program should be clearly defined for output, fully operational and user friendly before mandating its use by Project Managers.

Agree - Item complete.
Limit Hands-on use of XPM to the "experts" in the Project Management Support Unit (PMSU). A recently completed Business Process Review for project management concluded that "single hat" project managers need dedicated support staff within the PMSU. The dedicated support staff are considered "assistant project managers" and will use XPM and other tools to provide and retrieve project data. Project Managers will receive information from paper reports, third party software (Excel, Word, etc.) and the Project Schedule and Control System (PSCS) (See Recommendation #A.8 for more information on PSCS).   In addition, several districts have created localized databases to provide project managers and functional managers with project data.

For a long-term solution, the Department will continue to document and improve its project management processes. Included in this documentation will be a description of the detailed user requirements for a "project management tool" which will be a component of the integrated, automated, enterprise-wide program / project management system. The FSR for the overall system is not scheduled. (See response

Recommendation Number	Recommendation	Response

to Recommendation A.1, PART B).

The Department is exploring options to either enhance the XPM system or evaluate alternative software.

A. 3 — Establish one District as the trial District to work with Headquarters until the entire project management database and reporting system is working. Although District 3 has been the assigned District to date, it may be advantageous to consider either District 7 or District 12 as a future pilot to provide fresh ideas.

Disagree.
The schedule for developing the 1997-98 budget does not permit a second pilot. Each district has an immediate need to use the department's project management system, even if on a limited basis. The project management system should be limited to use by experts in Project Management Support Units. See Recommendation A.2.

A. 4 — Continue to use PYPSCAN as a reality check until XPM works.
PYPSCAN is a good overall system tool and will be one of our tools to predict workload needs on a global basis and used as an upper limit to check resources requested using XPM.

Agree - Item complete.
The Department is using PYPSCAN as a reality check.

A. 5 — As a 1st phase, concentrate on getting XPM up and running to level 5, then expand its use to lower levels. However, continue to check detailed logic so that it can be expanded to lower levels at a future date.

Agree - Item complete.
"Up and running to Level 5"has been completed as part of the workplan development activity being tracked by the "Project Workplan Development Status Report". The Project Workplan Development Status Report (PWSR) was a tool used to track the development of workplans forall 1400+major projects from the 1996 STIP, SHOPP and TSM programming documents. The PWSR tracked the progress of creating workplan data, gaining work agreements from functional managers, and the actual loading into XPM. The Department met its goal of creating workplans for all major projects for use in developing the project direct workload for the 1998/99 budget year.

A. 6 — XPM must readily accept ongoing adjustments for variable or changed conditions such as revised time cards, cash overtime, leave balance, and 9/80 schedules for shortened, more finite tasks with resource assignments by named individuals.

Item completed in a modified form.
XPM currently has the ability to perform the functions listed in the recommendation assuming Caltrans chooses to schedule work to the named individual. Caltrans does not have the level of maturity in project planning knowledge and skill to schedule to named individuals, and there are many situations where this level of planning is not cost effective.

Suggested rewording:On an ongoing basis, Caltrans needs to assess the needs for more advanced, finite schedule and develop processes and tools to accomplish the scheduling. Advanced, finite schedule should not occur before successful implementation of initial gross planning (Level 5 to Cost Centers) and should be incrementally implemented. Advanced,finite schedule should only be used where it iscost effective to schedule to finite detail.

There is no implementation schedule as this is a continuous activity.

Recommendation
Number	Recommendation	Response

A. 7   The ultimate data warehousing technology system of which XPM is only a part must be able to provide the data to allow for a final comparison of the original budget for a project, the record of the changes to the project, and the final total cost of the project including all overhead and ancillary costs for the project debriefing of the Project Manager, Function Manager, and Program Manager, then store this data in a systematic data base to use as a budgeting guide for future projects. added to the database in increments.

Agree - Item complete.
The Department is currently developing a scope for the "Project Financial Accountability and Cost Tracking System" - PFACTS. PFACTS will relate all major projects to their funding to verify that projects are fully funded, track actual project expenditures, then compare the remaining budget against estimate to complete. The initial component of the database, which will provide the ability to initiate projects and track project scope and cost (estimated, budgeted and expended) is scheduled for completion by January 1999. Additional data from existing information systems will be

A. 8   The implementation of the XPM resource management interface with Oracle needs to be expedited since the total project management process, as a complete tool, hinges on the information system data output report and its effective use by Project Managers. Without this timely and user- friendly complete data reporting system, the Project Manager is forced to improvise for much of the ongoing data needed to fully understand the status of a project.
percent of work complete. PSCS provides rudimentary Earned Value calculations for projects or functional units.

Agree - Item complete.
This has been accomplished through an expanded Project Schedule and Control System (PSCS).PSCS is a database in Oracle which integrates schedules and resource needs from XPM with actual hour charges against the activity from the Time Reporting System (TRS). By Thursday of a given week, PSCS includes all hours charged through the previous week. Project and functional managers have the ability to track actual hourly charges against any task scheduled in XPM, determine charges which were made against non-scheduled work, and assess overall project progress based on actual

A. 9   It is recommended that the following data sources be tracked and placed in the Project Managers Database as measurable goals for project evaluation and future budgeting as a part of the Program/Project Management Plan system.

a) Significant milestones and projects completion data compared with original schedule.
b) Final cost of project compared with original budget.
c) Receipt of External permits.
   i)   Date received vs. original schedule.
   ii) Additional costs to project to receive permit.
d) Number and complexity of bid documents addendum's during bidding process.
e) Comparison of bid cost with original programmed budget, fund request, engineers estimate, and final award amount.
f) Number and additional cost of construction change orders.
g) Number and settlement cost of post construction claims.
h) Accident rate during construction.
i) Ongoing tracking of accident rate after project completion.
j) Comparison of actual maintenance costs compared to anticipated programmed maintenance.
k) Success of congestion management program.

Modify, then agree.
This recommendation requires an integrated, automated, enterprise-wide program / project management system. This requires a Feasibility Study Report (FSR). It will include an implementation schedule. Preparation of the FSR is on hold pending resolution of the Department of Information Technology (DOIT) issues on statewide systems (see DOIT memo dated June 20, 1997).

Items i, j and k are not project data, hence, should not be in a project management database system. These are transportation facility operational data. This data is tracked in other databases.It will be available by relating the project data to those databases.

Recommendation

Number	Recommendation	Response

A. 10

It is recommended that the XPM Administrator's Advisory Council (XAAC) task force be expanded to include the technical experts from each District or Region which are presently implementing XPM under the "Band-Aid" concept in order to bring together the most knowledgeable practitioners with the charge of developing the fully operational user friendly system that meets the Project Managers needs. This basic system should be implemented in the trial district before it is expanded throughout all districts. (Note the excellent Operational "Band-Aid" systems detailed by the Northern Region and District 7.)

Disagree.
This is not the role of the XAAC. Their charter is specifically the implementation and support of XPM, not a total project management information system. This activity would weaken the charter of XAAC and jeopardize implementation of XPM as added work is placed on the XPM Administrators.

The Project Schedule and Control System (PSCS) provides much of the functionality included in the District 7 "Band-Aid". See Recommendation #A.8 for more information on PSCS.

The North Region (District 3) is the XPM trial District.

The District 7 "band aid" is a form of data warehouse. The department is expanding the project management data warehouse to include project schedule data and timesheet data. This will provide data and functionality equivalent to local (district) data warehouses. A team approach including district experts will be used to define the requirements of the expanded data warehouse.

A. 11

It is recommended that the XPM system be fine tuned so that it can be rolled up or down from a base level 5 on a function level, a project level, and a program level.

Agree - Item complete.
Project Managers now have the ability to do the roll up or down from a base level 5 for function, project, and program.

A. 12

All costs affecting the project need to be entered into the database on a regular basis if the overall status of the various projects are to be evaluated by the Project Manager to make timely changes as part of the Program Project Management Plan.

Agree.
This recommendation is included with the solution described for Recommendation No. A.7. The planned January 1999 release of the Project Financial Accountability and Cost Tracking System (PFACTS) will include costs at a summary level (consistent with the STIP support components described in SB 45 legislation). Future releases will provide more detailed expenditure information.

The Project Schedule and Control System (PSCS) provides hourly charges made through the previous week. See Recommendation #A.8 for more information on PSCS.

A. 13 A

There should be a link between XPM and CATS for tracking consultant hours and costs, and consultants should use the same WBS elements as State Employees for reporting their time and costs. It would improve accounting efficiency if CATS were modified to permit direct entry of consultant invoices.
(Note: This Recommendation has been divided into (3) Parts.)

Item completed in a modified form.
This listing is for Part A of Recommendation A.13. which is "… and consultants should use the same WBS elements as State Employees for reporting their time and costs."

The Department's contract language for Architectural and Engineering (A&E) contracts requires the submittal of invoices using the Caltrans WBS codes.

A. 13

B There should be a link between XPM and CATS for tracking consultant hours and costs, and consultants should use the same WBS elements as State Employees for reporting their time and costs. It would improve accounting efficiency if CATS were modified to permit direct entry of consultant invoices.
(Note: This Recommendation has been

Modify, then agree.
This listing is for Part B of Recommendation A.13. which is "It would improve accounting efficiency if CATS were modified to permit direct entry of consultant invoices."

The Department intends to develop a process and tool for the electronic submission of invoices with their WBS detail. This will not be CATS. It will be developed when computer programmers become available after dealing with the Year

Recommendation Number	Recommendation	Response

divided into (3) Parts.)

2000 problem.
(Note: This response is a duplicate of A13B.)

A. 13 C

This listing is for Part C of Recommendation A.13. which is "There should be a link between XPM and CATS for tracking consultant hours and costs,...".

The Department intends to develop a process and tool for the electronic submission of invoices with their WBS detail. This will not be CATS. It will be developed when computer programmers become available after dealing with the Year 2000 problem.

A. 14 A — It is imperative that a reality check be run on XPM, and an achievable accomplishment list including the linkage data of this system with ancillary output programs such as CATS, ORACLE, etc. This should provide Project Managers with the actual data deliverables including dates when delivery will take place. It should be prepared as soon as possible to restore credibility of the basic tool.

Agree - Item complete.
This listing is for Part A of Recommendation A.14. which includes all of the recommendation with the exception of the linkage with CATS.

All except consultant hours have been included as part of Project Schedule and Control System (PSCS) (see response to recommendation A.8 for more information on PSCS).

A. 14 B

Agree.
This listing is for Part B of Recommendation A.14. which specifically responds to the linkage with CATS.

The Department intends to develop a process and tool for the electronic submission of invoices with their WBS detail. This will not be CATS. It will be developed when computer programmers become available after dealing with the Year 2000 problem.
(Note: This response is a duplicate of A13B.)

A. 15 — The PRC recommends that Caltrans train all staff members to use the term "XPM" appropriately as only one of the elements of the "Program / Project Management Plan" that is limited to providing scheduling and support cost management data with elements of risk management.

Agree - Item complete.
This is an ongoing effort at SFP, SPMIT, and XAAC meetings.   This is also incorporated in the Project Management education "Roadshow" which commenced in February 1997and is continuing.

B.   Project Management Program Implementation

B. 1 — Although Single Focal Points may have the responsibility and flexibility in deciding whether to go below level 5 for project management data collection at this time, sometimes Corporate may have special requirements on certain projects to collect data below level 5, and therefore, a formal policy on these projects should be established for guidance of the Project Manager.

Item completed in a modified form.
The Project Manager and Functional Manager determine the appropriate level on a project-by-project basis. Completed in Caltrans Project Management Handbook, January 1995, and the "Guide to Caltrans COS Work Breakdown Structure", May 1996.
"Guide to Capital Support Management Reports", November 1997.

B. 2 — The Project Manager should finalize project budgets in dollars including the cost of other

Agree - Item complete.
This is the Department's practice on the recently-initiated

Recommendation Number	Recommendation	Response
	project costs, the dollar value of PYs, as well as consultant costs when applicable.	Project Support Budgets.
B. 3	In order to be sure that the Function Manager will equitably allocate resources to projects, the general rule should be that all Projects Managers should be one hat.	The Director issued direction adopting a One-hat PM policy on 11/20/96. A major transition to implement coincided with the 1997/98 staffing plan development process, increasing the number of One-hat PM positions to about 90, an increase of 40% over 1996/97 levels. At a State-wide meeting on June 4, 1998, every District reported that it was in compliance with the policy.
B. 4	However, some small (less than one million dollars in capital outlay) single function projects may lend themselves to the two hat management concept at the discretion of the District Program Manager.	This was addressed in the 11/20/96 One-hat policy direction. Implementation began in 12/1/96.
B. 5	Project data pertaining to earned value such as budget and schedule expended compared to milestone reached and tasks accomplished must be available to Project Managers on a minimum of a monthly basis. Graphic trend reports must be available to the Project Managers so they can quickly and easily recognize project status.	Earned value capabilities are included in the "Project Schedule and Control System (PSCS)". This system was implemented on October 20, 1997. However, the current version does not include graphical capabilities. Graphical reports are available by downloading the information from PSCS and plotting with third party software (EXCEL, database programs, etc.) Graphical reports will be developed in a later version of PSCS.
B. 6	Function Managers must have the ability to reallocate resources based on changing project demands and priorities subject to Project Manager concurrence and Single Focal Point arbitration of differing opinions of the team members.	This is the Department's current policy. The policy is repeated each year in the annual budget allocation instructions.
B. 7	It is recommended that the Project Manager for a project that shares function resources between Districts (Brokering), be from the District where the project is located, and that brokering of portions of discreet project functions be used sparingly due to the inefficiency of split project functional teams.	Agree - Item complete. This is the Department's current practice
B. 8	It is recommended that a formal project management training program be established for all new Project Managers and Functional Managers.	During the 1997-98 Fiscal Year, the Department provided a five-day "Project Management Fundamentals" course to 145 project managers. The vast majority of project managers have received this training. The course continues in 1998-99 for new project managers and for the few who missed the course in 1997-98.

During 1998-99, a further course will be offered on "Leading Project Teams". We will also be providing a two-day course on "Project Management for Executives."

A one-day Project Management course for Right of Way Functional Managers began in February 1997. This was expanded in December 1997 to all functions. It provides an understanding on the Corporate vision regarding Project Management. |

Recommendation Number	Recommendation	Response
B. 9	It is recommended that in implementing contracting-out for Professional Services under the Flexible Resource Plan or when negotiating internal work plan project agreements, that Project Managers and Function Managers be trained in negotiating and administering lump sum contracts in a manner consistent with Quality Based Selection procedures.	The Office of Procurement and Contracts has developed Contract Management Information and Specialized Training (CMIST). This is an on-line training program on the Caltrans Intranet. Contract managers receive just-in-time training in the full variety of service contracts, including negotiating and administering lump sum contracts using Quality Based Selection.
B. 10	It is recommended that in implementing contracting out for professional services under the Flexible Resource Plan that Project Managers and Function Managers be trained in the negotiating and administrating of Design/Build contracts based on the Quality Based Selection two-phase procedures.	Item completed in a modified form. We have no authority to utilize Design/Build contracts. Legislation introduced in the 1997-98 legislative session died in committee. This recommendation is abandoned. It will be revived when the required legislation passes.
B. 11	Any functional unit of Caltrans whether at the District level or Headquarters Staff that will use any of the resources assigned to a Project Manager must be a party to the signed work agreement.	Agree - Item complete. At a State-wide meeting on June 4, 1998, every District reported that it was in compliance with this recommendation.
B. 12	Although Resident Engineers have a history of working as independent Project Managers during construction, it is important that in the future, the Project Manager maintains control of the project schedule and budget through the completion of construction because it is this phase where the most can be learned through accountability for measurable results. (Note: This recommendation is similar to B.15)	Agree - Item complete. Policy directing the practice of project management through construction is contained in Deputy Directive DD-34. This policy is detailed in R.P. Weaver's Memo of 6/24/93, "Project Management Effort Through Construction Phase" and the attached "Project Manager Post Award Duties". This has been reemphasized in the new Project Management Handbook, 2nd edition (September 1997). In addition it is currently being stressed in the Project Management education "roadshow" and will also be addressed in the new Project Management Procedures Manual.
B. 13	Where a "Project Engineer" is assigned to the project management team, this person must be a signator and supporter of the final project resource agreement.	Item completed in a modified form. The project engineer is generally a Transportation Engineer, Range D. A person in this classification is responsible for ensuring the engineering quality of the design and for complying with the Professional Engineer's Act. It is, however a non-supervisory classification. People in this classification do not control staff assignments, nor do they control a budget. The resource agreement should be signed by the design functional manager. This is generally the project engineer's supervisor. This has been reemphasized in the new Project Management Handbook, 2nd edition (September 1997). In addition it will also be addressed in the new Project Management Procedures Manual.
B. 14	The PRC recommends that an oversight task force be created at the Headquarters level, staffed by the most experienced Functional Managers, to monitor the Product Driven Zero Based Budget and schedule requests submitted by Project Managers. This	The Department has a Capital Outlay Steering Committee that fulfills this function. At a more detailed level, it has a Single Focal Point Advisory Committee and at a yet more detailed level, it has a State-wide Project Management Improvement Team. These three teams satisfy all the requirements for this

Recommendation Number	Recommendation	Response
	recommendation is made because, although project budgets are easier to monitor than program budgets, they are only as accurate as the experience and talents of the Project Manager and the team. Since this is a new program for most Project Managers and there is little, if any, historical or norm data presently available. Strong oversight on a project level should be implemented until these two major shortcomings are eliminated. Management Office Chiefs.	recommendation. The Capital Outlay Steering Committee consists of six corporate Program Managers, who meet every Wednesday morning. The Single Focal Point Advisory Committee consists of the District Division Chiefs for Program / Project Management. The State-wide Project Management Improvement Team consists of the Project Management Improvement Team leaders from each District plus the Corporate Project
B. 15	On page 24, Chapter VII - Project Management Activities, the role of the Project Manager should be expanded through the construction phase and the Resident Engineer should be part of the work plan.	Agree - Item complete. Policy directing the practice of project management through construction is contained in Deputy Directive DD-34. This policy is detailed in R.P. Weaver's Memo of 6/24/93, "Project Management Effort Through Construction Phase" and the "Project Manager Post Award Duties". Project Manager roles and responsibilities through construction are also contained in the Roles and Responsibilities contained in the Project Management Handbook dated January 1995. In addition supplemental funds requests for ongoing construction contracts must be approved by the project manager. Although the Policy and Procedures have been in place for several years, the actual introduction of Project Management into the construction phase by the districts has moved forward slowly, but is now more prevalent than in previous years. The current effort to get workplans for all projects into XPM, will require the PM and Construction personnel to become involved in the planning for resources and timelines for the construction phase. We expect this effort will raise the awareness of the project management role through construction. This has been reemphasized in the Project Management Handbook, 2nd edition (September 1997).
B. 16	The Project Management Activities data recording is designed for large and complex projects. It would be helpful to Project Managers if a flexible system of reducing data reporting requirements for single function or small projects be provided for guidance.	Completed. Lower levels of the WBS can be used to report activities of single function or small type projects.
B. 17	The role of the Project Engineer needs to be more thoroughly defined to prevent overlap or omissions in responsibility with the Project Manager.	This has been reemphasized in the Project Management Handbook, 2nd edition (September 1997).
B. 18	'Open to traffic' should become the most important milestone, and the date of one year after this milestone should be the final milestone for the Project Manager. after the project is open to traffic. Project close-out includes the clean-up and the resolution of all claims.	Disagree. The PM should maintain responsibility until completion of project close-out. Open to public is difficult to define. Claim resolution and right of way clean-up can take several years
B. 19	Function Managers are as critical to the Product Driven Zero Based Budgeting Project Management Program as the Project Manager and should receive training as to their	Agree - Item complete. A one-day Project Management course for Right of Way Functional Managers began in February 1997. This was expanded in December 1997 to all functions.

Recommendation
Number   **Recommendation**   **Response**

    role on the project team.

B. 20   It is recommended that it be standard procedure for the Project Manager to interview the "Customer" at the start of the project to determine scope, and upon completion of the project to prepare a standardized report on customer satisfaction.

Agree.
This recommendation has been partially implemented. The new Project Management Handbook, 2nd edition (September 1997) and Project Management education "roadshow" emphasize the importance of recognizing who the project customers' are, finding out their needs and expectations, and then meeting or exceeding those needs and expectations as a fundamental concept in delivering a "quality" project. The education also focuses on this information being included in the project workplans. SB 45 has been enacted to provide STIP Reform and will enhance the "customer" role regional transportation agencies will now play on state highway projects.

Activity elements currently exist within the WBS to capture charges for customer interviews. Specific emphasis will be added to highlight this particular activity in the next WBS Guide update.

The Department has worked with California State University, Chico, and developed a customer satisfaction survey regarding project delivery. The initial implementation for this survey will be with internal customers: Planning, Maintenance, and Operations. The internal customers have reviewed the survey. Their input needs to be incorporated into the survey, and then it will be placed into operation. The process is under way to appoint a Project Manager to finalize development of an instrument, and to establish the necessary procedures to begin measuring quality in the 1998/99 fiscal year.

B. 21   It is recommended that depending on the difficulty of the project that up to 10% of the Capital Outlay Support Resources be allocated to Project Management to allow the Project Manager sufficient resources to guarantee budget, schedule and quality of the project.

Agree - Item complete.
Project Management support included in 97/98 Workplans. Initial workplan guidelines are 5-10% for Project Management.

C.   *Project Delivery Efficiencies*

C. 1   All levels of the Caltrans project team need a better understanding of who the customer is so they can become customer oriented.

In addition it will also be addressed in the new Project Management Procedures Manual.

Agree - Item complete.
This has been reemphasized in the new Project Management Handbook, 2nd edition (September 1997).

C. 2   Caltrans needs to establish a program for client/customer debriefing to determine the project satisfaction level of the customer.

Agree.
The PMP Program has developed, through an Inter-Agency Agreement with the Survey Research Center at CSU, Chico, a survey for determining the project satisfaction level of its customers. The survey is entitled "Caltrans Project Management Program - Quality Measures for Completed Projects". The process is under way to appoint a Project Manager to finalize development of an instrument, and to establish the necessary procedures to begin measuring quality in the 1998/99 fiscal year.

C. 3   It is recommended that requests for additional

Agree - Item complete.

Recommendation
Number   **Recommendation**   **Response**

funding from the California Transportation   On a regular basis, within the guidelines for submitting Finance
Commission (CTC) contingency fund for   letters and Section 28's, the Department submits requests for
projects and legislature finance letters for   resources for unforeseen work. For fiscal year 1997/98, the
programs be used as often as required to   Budget Act contains an item that has a $40 million dollar
request additional funds for projects and   contingency fund which can be used when the Governor
programs that experience significant   declares emergencies.
unforeseen changes that require funding that
is above the approved budget, rather than
borrowing resources from the early stage of
future projects.   The approval process for
theses additional funding mechanisms must
be expedited by both the CTC, and Legislature
so as not to impact product delivery.

C. 4   It is recommended that borrowing resources
           from projects scheduled to be completed in   Chapter 622 of the Statutes of 1997 (SB45) will assign support
           future years be discouraged since this only   costs specifically to future projects. This chapter was enacted
           tends to delay and cause budgeting problems   on October 3, 1997. As SB45 work commitments are made,
           for the future project.   borrowing of resources will not be possible.

C. 5   It is recommended that a plan be developed for
            project management of Caltrans oversight on   As a result of quality team meetings a plan was worked on to
           locally managed projects.   develop the revised policy and procedures for technical
                                                            oversight to be performed by all functional units.
                                                            The SB45 Guidelines have been developed and were issued to
                                                            the Districts.

C. 6   It is recommended that Caltrans submit an
           updated implementation plan and schedule to   The Department used zero-based product driven budgeting for
           the Legislature when the use of a completely   the 1998-99 fiscal year for workload for all major Capital Outlay
           functional product driven zero based   projects. For 1998-99, workload was extracted from XPM and
           budgeting and project management program   priced in an external program. The Department has now
           will be ready for user-friendly use. Since it is a   chosen to load average labor and operating expense charges
           total culture change, as well as a technical data   into XPM, therefore, project workplans in XPM contain both
            base change it must have time to work itself   and estimate of hours of labor required as well as
           into the work habits of the staff and   corresponding costs.
           leaderships within Caltrans.

C. 7   It is recommended that Caltrans report its   Agree - Item complete.
           record of project deliveries in two   Completed, this is done in the end of year CTC report.
           categories -

           a) Continue to report on the number and
           percent of the original STIP projects proposed
            to be delivered during the year, versus the
           actual percentage completed of the original
           projects, and the reason for non-completion
           on those that were not completed.

           b) Expand the report to include the number of
           new projects that were added to that year's
           STIP from the future STIP because of project
           efficiencies or additional available resources (
           such as new funding from bond issues, etc. or
           reallocated funding from delayed or canceled
           projects) and their percent complete and time
           saved by moving them ahead.

C. 8   Caltrans should enhance the effectiveness of   Agree - Item complete.
           its Environmental Specialist resources so it   This recommendation builds on the Environmental Program's
           can respond statewide, such as the District 12   existing pooling concept and organization.

Recommendation Number	Recommendation	Response
	Right-of-Way Service Center in an effort to expedite environmental clearance.	As part of Caltrans reorganization, to balance staff specialists with environmental workload, effective July 1, 1994 all Biological and Cultural Resource positions within the Department were transferred to a specialist pool. These included both vacant and filled positions, but did not involve any physical transfer of staff. To help balance staff resources with workload, however, the authorization included the provision that no specialist vacancy could be filled unless first approved by the Environmental Program Manager.

The reorganization also transferred to the Environmental Program 5 vacant Biologist positions. These positions were filled and organized as the Southern California Biological Pool (SoCal BioPool). The SoCal BioPool is sourced to and managed by the Environmental Program, but is headquartered in District 12 to cut down on travel costs. Staff is housed in Districts 7, 11 and 12. The pool of 5 Biologists including the Senior supervisor primarily serves Districts 7, 8, 11 and 12. In addition the Environmental Program has a pool of biologists headquartered in Sacramento who on an as needed basis are available to work anywhere in the state, but primarily work in Districts 3 and 10.

The Environmental Program has a Cultural Resource Specialty pool located in Sacramento with staff available to work where ever needed through out the state. In addition the Program "brokers" District sourced Cultural staff between Districts as needed. To date this has worked very well.

Recently as a part of its reorganization on a Regional basis the Department established two Regional environmental pools, one for northern California, based in Marysville and one for central California based in Fresno. No physical transfers of staff were made, but Environmental Specialist positions were centrally sourced in each region to facilitate assignment of staff to where ever the need is. As vacancies occur consideration will be given to moving positions to the area where most needed.

In our opinion, pooling allows for better utilization of specialists in that they can be assigned where there is the greatest need. Also more effective use can be made of their expertise as their efforts can more easily be directed to projects and activities requiring that specialty. We have elected not to place all environmental specialists in one central location for several reasons. One major reason is to reduce travel time, fatigue and costs. Another is the benefit of staff becoming familiar with the resources and other agency staff within a region. |
| C. 9 | Project completion schedules are established in programming documents adopted by the CTC on a different timeline than the state budgeting process. PRC recommends that Caltrans carefully evaluate its resource needs under the new project based program before committing to a project completion schedule and staff resource requirement, since otherwise it will continue to be a program based budget. Also, the Legislature will be carefully watching the completion results for the proposed full program with the current staff | Item completed in a modified form.
This situation applies only to new projects added in a particular programming document. Although the STIP is a seven year document and the SHOPP is a four-year document, they are programmed biennially. Projects therefore remain in these documents for two or more programming cycles. Projects that roll forward from previous cycles already have Product Driven Zero Based Budgets. Budgets and schedules will be established on new projects during the programming process. These schedules will be tied to resources planned for the forthcoming year. (Note: since writing this item, the passage of SB 45 has changed the STIP to a six-year document in 1998 |

Recommendation
Number	*Recommendation*	*Response*

level thinking it is project based, when it is not. STIP do not change this item C.9.)

and a four-year document in later years. The changes to the

C. 10 — PRC recommends that all future program resource requests include contingency plans which provide for the opportunity to use flexible resources, such as contracting-out, when unforeseen changes are required to prevent the reallocation of resources on a crisis basis.

The Department has, as stated above, already submitted a proposal for contingency funds for storm damage to the CTC. The regular legislative budget process, however, precludes departments from submitting budget change proposals for contingency items; thus our use of the CTC request.

The Department evaluates the resources to be requested based on the type of work to be done. Contracting out may not be the best alternative or the legally accepted alternative for some types of work; therefore all contingency type fund requests may not always be limited to the use of contracting resources.

C. 11 — PRC recommends that Caltrans determine their interpretation of the requirements of SB1505 (devolution) and SB160 (flexible resources) and the impact of a favorable decision on the part of the Supreme Court for contacting-out, so the major changes can be incorporated into the project management and budget programs as soon as possible without creating another frustrating cultural shift for staff.

Agree - Item complete.
These bills did not pass in the 1996 session. Devolution is accomplished by Chapter 622 of the Statutes of 1997 (SB45) which was enacted on October 3, 1997. Flexible resource legislation was introduced in 1997 but did not pass out of policy committees by the April 26 deadline. The Supreme Court decision on May 15 was not favorable.

C. 12 — A project should not be scheduled in the STIP for design and construction until it has environmental clearance.

Item completed in a modified form.
A project for design and/or construction should not be programmed into the first two years of the STIP until Project Approval and Environmental Document (PA&ED) are complete, consistent with current CTC Resolution G-90-21, approved September 20, 1990. Chapter 622 of the Statutes of 1997 (SB45) says that right of way and construction cannot be programmed without an environmental document. This chapter was enacted on October 3, 1997.

D. Allocation of Resources

D. 1 — It is recommended that the resource allocation to the Districts provide a flexible system of all types of District resources, such as the use of cash overtime, temporary employees, student interns, the reassignment of resources between Districts and the substitution of staff resources for professional services contracting-out dollars be established so that projects can move ahead on schedule. This ability to change resource allocation would eliminate the inefficiencies and additional costs caused by not being able to correct for the lack of needed resources or the over abundance of fixed resources.

Agree - Item complete.
The Department currently allocates in those four categories and the districts are even free to change between categories that are not externally controlled---i.e., they cannot use operating expenses or contracting out funds to create positions. They do have the flexibility of using other types of operating expenses to augment their cash overtime or student interns as well as other category of expenses. They can also use permanent positions to trade for temporary help if needed. Also in the 6/7 FY, the Department has implemented the allocation of Personal Services funds so these too, can be used to exchange for other expense needs.

D. 2 — Rather than arbitrarily allocating some standard percentage of each Capital Outlay Support budget to the ESC, ESC should

The Department has never arbitrarily allocated a standard percentage of each Capital Outlay Support budget to the ESC.

Recommendation
| *Number* | *Recommendation* | *Response* |

| | estimate its real needs on a project-by-project basis, and sign the work plan agreement.
real needs on a project-by-project basis, and sign the work plan agreement. | In the past, the ESC workload was calculated by PYPSCAN on a project-specific basis in the same manner as for the Districts. Under the new process the ESC does estimate its |
| D. 3 | Corporate decisions on a program level need to take into account the resource estimates recommended by Project Managers and based on the individual project Product Driven Zero Based Budgeting Program. This first step of product driven zero based budgeting is essential and must be an integral part of the Capital Outlay support programs budgeting process and is a must if Caltrans is to ever be successful in project delivery under the new project management culture. | This was done in the 1997-98 budget cycle. |

E.   *Performance Measures and Incentives*

E. 1	Establish an annual external measurement tool (peer review) for quality, schedule and budget results. Not necessarily a standing committee with fixed membership.	Disagree. Establishment of an annual external measurement tool (peer review) is premature at this time. The Workload Development Peer Review has concluded, and the PMP has prioritized efforts which need to be made to develop/improve processes and tools. An independent consultant evaluation compared Caltrans to external engineering organizations in workload estimating, and found that "... the work Caltrans is undertaking seems to be one of the more progressive and innovative efforts at resource requirement estimating among public works organizations." The process to develop the Capital Support quality performance measure will give a measurement tool for quality. In addition to these, the Project Management Improvement efforts, the organization/cultural change to one-hat project managers, and the Department's performance measurement process are all in the implementation. To establish an external measurement process until these processes and tools are in place and operational would be premature, confusing and possibly, counterproductive. Once these processes and tools are in place, this recommendation could be revisited.
E. 2	Implement the proposed on-going internal performance measurement program for quality, schedule, and budget results. under way and is on-going.	Agree - Item complete. This is the intent of the Department and the Project Management Program. This implementation process in
E. 3	Caltrans needs an enhanced incentive program to reward high performing staff members.	Finding 35 of the Peer Review Report is a partial list of the Department's award programs. Some of these have just been implemented in the last two years. For example, each of the Director's Awards are presented by the District Director's at staff meetings in the districts and each participating team/staff member receives an individual certificate. For these awards alone, 39 individuals were recognized for high performance. The Department frequently recognizes individual staff achievement related to certain critical projects. Recently staff members involved in seismic project accomplishments were presented with certificates. The management of the Office Engineer staff gives a cake and coffee "party" each year to

Recommendation
 Number   Recommendation   *Response*

recognize outstanding performance of the entire organization.

In addition to these "engineering" type awards, the Department recognizes sustained accomplishments both in the form of certificates and a monetary award that is determined by the Supervisor (within budgetary constraints). These referred to as "Gold" and "Silver" awards are given once per year.

E. 4   There should be a system set up so the   Modify, then agree.
            Program Manager and Project Manager can   The Capital Outlay Support (COS) Program has developed
            continually monitor the adopted performance   twelve performance measures: six of these are monitored
            measures to assure they remain current and   quarterly and seven are reported on annually. There are four
            credible.   additional measures on which reporting will begin in the 1998/99
                                                              FY. For three of these, existing databases have been
                                                              enhanced, and new databases and processes are under
                                                              development which will provide the ability to maintain a
                                                              continuing project inventory and track project cost across
                                                              splits and combines. The fourth of these covers customer
                                                              satisfaction and is addressed under the response to
                                                              recommendation B.20.

E. 5   A simplified performance measuring program   Item completed in a modified form.
            needs to be established that measures   A process to measure resource use compared to productivity
            resource use compared to productivity with   should be incorporated into project management tools and
            simple logical reports on a project and   reporting.
            program level for review by the Program
            Manager, District, Director, Corporate and the   A process is in place to provide timely resource use for active
            Legislature.   projects. Statusing of workplans, with percent complete, will
                                                              provide the productivity measure. The desired comparative
                                                              measure will be "earned value".

E. 6   It is recommended that all funds allocated to   Agree - Item complete.
            Caltrans for every program they are assigned   The Department has just created, in cooperation with the
            be allocated to a product or service   Legislative Analyst's Office, a set of performance measures
            recognizable to the public so that the   that are driven by specific projects to which specific resources
            Legislature can evaluate cost benefit for each   are allocated. All other non-project specific allocations are
            product or service. This would make it   made to specific activities.   Specific amounts are allocated to
            possible to evaluate the true cost of Capital   overhead also and monitored for compliance during the year.
            Outlay Support for the project delivery
            program.

E. 7   After reviewing the Report to the Legislature   Disagree.
            on Capital Support Performance Measures,   Caltrans is developing a three-tiered system of performance
            the PRC recommends an expansion of the   measures consisting of:
            number of proposed measures.   1.A limited number of corporate measures that focus on the
                                                              overall health of transportation in California.
                                                              2. Program measures that focus on the health of each of the
                                                              Department's programs.
                                                              3. Operational measures at the point where delivery of a
                                                              product or service occurs.

                                                              The Peer Review Team recommends four additional
                                                              performance measures. One of these is more appropriately a
                                                              Department-level measure, one is already included in the
                                                              Capital Support Measures, and two are more appropriately
                                                              operational measures.

                                                              The Department-level measure would measure quality some
                                                              time after construction. The Department is developing
                                                              measures of mobility, safety and trip quality that will address
                                                              this need.

Recommendation
Number   *Recommendation*   *Response*

The program-level measure would address capital cost growth after construction. Capital Support performance measure #9 addresses this by comparing the final estimate to the proposed final estimate.

A third recommendation would measure quality in project development. This is an operational measure of the design process.

The fourth recommended additional measure is to address support cost after construction.   This is an operational measures of Construction Claims and Legal. These support costs are a fairly small part of Capital Support and do not warrant elevation to the   Program-level.

Number	Recommendation	Response
E. 8	"Earned Value" should become a byword of the project management program and should be applied in the following three basic accountability areas: a) Resources Expended Compared to Resources Budgeted for the Project b) Products Delivered Compared to Program Milestones c) Actual Schedule Compared to Planned Schedule	Agree - Item complete. The project management courses include training in the proper use of "earned value." Project Managers now understand the full range of concepts – Budgeted Cost of Work Scheduled (BCWS), Actual Cost of Work Performed (ACWP), Budgeted Cost of Work Performed (BCWP, also called "Earned Value"), Cost Variance (BCWP-ACWP), Schedule Variance (BCWP-BCWS), Cost Performance Index (BCWP/ACWP), Schedule Performance Index (BCWP/BCWS), Estimate to Complete (ETC), Estimate at Complete (EAC) and Variance at Complete (VAC). The 1998-99 District Operational Plans require that "Earned Value" reporting, properly used, shall be performed for every major State Programmed State Highway project at the level of the SB45 components.
E. 9	In depth training at all levels of staff must be implemented as soon as the complete system is operational so that they clearly understand their role in Capital Outlay Support and know they must be accountable and motivated to contribute to project delivery in the most cost effective manner on each individual project through the implementation of the Product Driven Zero Based Budgeting and project management system. on "Project Management for Executives."	Agree - Item complete. During the 1997-98 Fiscal Year, the Department provided a five-day "Project Management Fundamentals" course to 145 project managers. The vast majority of project managers have received this training. The course continues in 1998-99 for new project managers and for the few who missed the course in 1997-98. During 1998-99, a further course will be offered on "Leading Project Teams". We will also be providing a two-day course A one-day Project Management course for Right of Way Functional Managers began in February 1997. This was expanded in December 1997 to all functions. It provides an understanding on the Corporate vision regarding Project Management. (Note: This response is a duplicate of B.8.)